Conceptualizing the ATP III Guideline: From formal statements to guideline model

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Session objectives:

To model guideline knowledge created in the previous session in line with the EON guideline model. The patient model and the medical concept model are not the focus of this exercise.

Output from previous session: Conceptualization of guideline I: Defining guideline concepts

I. Target Population
II. Screening
III. Risk factors
IV. Risk categories
V. Guideline goals
VI. Threshold for initiating drug therapy
VII. Clinical algorithm

Defining EON Model categories:

- **Documentation:**
  - **Title**
  - **Authors**
  - **Version**
- **Eligibility criteria**
- **Goal**
- **Patient characterization (Abstractions about patients)**
- **Clinical Algorithm (Recommendations)**
- **Drug Usage (Properties of drug classes)**
- **Guideline drugs (Properties of drugs)**

I. Eligibility criteria

Reference materials: Workshop Consensus
ATP3 Executive Summary Page 3-5;
ATP3 At-a-glance steps 2-4

Purpose: Define if a specific patient is eligible for guideline recommendations

Directions: Define the eligibility criteria for patients to receive guideline recommendations in a formal statement.

HINTS:

- Is it restricted by gender?
- Is it restricted by age?
- Is it restricted by race?
- Are there any other conditions that would make patients ineligible?

Formal Statement:
Hint: Add exclusions as "absence of transplant" or "creatinine<2.5" and inclusions as "presence of hypertension"

II. Patient characterization (Abstractions about patients)

References: Workshop Consensus
ATP III: Executive Summary Table 5
ATP III: At a glance – Step 5

Purpose: Patient characterization is used to define patient groups of interest.

Directions: Characterize patients in terms of their risk category

Risk categories will be defined in terms of patient data available to the system. In the absence of patient data what should be assumed? What behavior should the system have?

1. Absence of family history of CHD is not available in an accessible format to the computer. Should we require data entry from the clinician? In the absence of such data entry should we assume present or absent? Or should we not assume and give the clinician 2 options: with family history of CHD and without family history of CHD

Formal statements about each risk category

Low Risk

High Risk

III. Goals

References: Workshop Consensus
ATP III: Executive Summary Table 5
ATP III: At a glance – Step 5

Purpose: Define if a specific patient met the guideline goal or not to generate appropriate recommendations

Directions: Define overall guideline goals per risk category in a formal statement.

Goals are defined based on patient data. What if lipid profile is old?

Guideline goals per risk category in a formal statement:

Low Risk

High Risk

IV. Clinical Algorithm (Recommendations)

References: ATP III: Executive Summary Table 5
ATP III: At a glance – Step 5

Purpose: Sketch the clinical algorithm the patient data traverses (goes through) to generate patient specific recommendations. Define decision points.

Directions: Start with generic patient scenarios followed by decision steps, criteria for decision choice and the final recommendation. In some cases there may be multiple decision steps before a recommendation is generated. These are similar to algorithms in clinical practice guidelines.

Sketch the clinical algorithm.

Patient scenario: High Risk category and has active prescription for simvastatin

Recommendations to generate:

- **"Order lipid profile"**
- **"Patient meets LDL goal, continue therapeutic lifestyle changes"**
- **"Patient not at LDL goal, increase dose of simvastatin"**
- **"Patient not at LDL goal, add nicotinic acid"**

V. Drug Usage (Properties of drug options)

References: Workshop Consensus
ATP3 At-a-Glance step 7
ATP3 Executive summary Page 12-15

Purpose: The execution engine will examine factors that support or block a drug recommendation

Directions: Define properties as formal statement in drug class to generate appropriate recommendations for the drug class Statins

a) **Compelling indications- Formal statement**
- Behavior: the program recommends drug class addition if there are no absolute contraindications and no bad drug partners. A compelling indication icon can be placed beside the recommendation in the UI to alert the clinician.

b) **Absolute contraindications- Formal statement**
- Behavior: the program blocks a drug recommendation

c) **Relative contraindications- Formal statement**
- Behavior: the program recommends drug class addition if there are no absolute contraindications and no bad drug partners. A relative contraindication icon can be placed beside the recommendation in the UI to alert the clinician.

d) **Preferred drug –**
- Behavior: DSS will issue a specific drug recommendation, for example lisinopril.

VI. Guideline Drug (Properties of drug options)

References: Workshop Consensus
ATP3 At-a-Glance step 7
ATP3 Executive summary Page 12-15

Purpose: Define drug properties such as dose ranges. Preferred drugs in "Drug usage" need to be defined as guideline drugs.

Directions: Define dose ranges for each specific drug. If a drug is in the high dose range, the system will not recommend dose increase.

Formal statements about drug high dose ranges:
Hint: Need to define high dose range for each formulation type, for example sustained release.

Drug class: Statins:

- **Lovastatin**

Dose ranges

- **Simvastatin**

Dose ranges